

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Robert Aharonov et al.

Application No.: 10/645,972

Confirmation No.: 8385

Filed: August 22, 2003

Art Unit: 1775

For: ENGINE COMPONENT WITH WEAR-
RESISTANT COATING

Examiner: Elizabeth D. Ivey

AMENDMENT AFTER FINAL ACTION UNDER 37 C.F.R. 1.116

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action mailed June 21, 2006, the deadline for response thereto being September 21, 2006, Applicant submits the following amendments and remarks.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 3 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A piston pin having a low friction coating thereupon, said coating comprising:

a vapor deposited coating comprising doped chromium nitride, said coating being disposed upon at least a portion of said piston pin.

2-4 (Canceled)

5. (Original) The piston pin of claim 1, wherein said vapor deposited coating is polished.

6. (Original) The piston pin of claim 1 wherein the coating is deposited as a plurality of layers.

7. (Canceled)

8. (Original) The piston pin of claim 1, wherein said vapor deposited coating is a coating which is deposited by a process selected from the group consisting of: physical vapor deposition, chemical vapor deposition, evaporation, plasma assisted chemical vapor deposition, arc vapor deposition, and combinations thereof.

9-22 (Canceled)

REMARKS

Status

Claims 1, 5-9, 12-14, 21 and 22 were pending in this Office Action. By the present amendment, claims 7 and 9-22 have been canceled. No new claims are added. Accordingly, it is claims 1, 5, 6 and 8 which are at issue.

The Office Action

In the Office Action mailed June 21, 2006, claims 1 and 8 were rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent 6,482,476 of Liu. Claims 1, 6, 7, 8 and 21 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent 6,213,075 of Ajayi taken in view of U.S. Patent 6,640,779 of Thiyagarajan. Claim 5 was rejected under 35 U.S.C. §103 in view of the above-referenced '075 and '779 patents taken further in view of U.S. Patent 2,558,286 of Albertson.

Claims 9, 13, 14 and 22 were rejected under 35 U.S.C. §103 as being unpatentable over the above-referenced '075 and '779 patents taken further in view of U.S. Patent 4,974,498 of Lemelson. Claim 12 was rejected under 35 U.S.C. §103 over the aforementioned '075, '079, '498 and '286 patents taken in combination.

Claims 1, 6, 7 and 8 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent 5,582,414 of Miyazaki in view of the above-referenced '075 patent. Claim 5 was rejected under 35 U.S.C. §103 over the above-referenced '414, '075 and '286 patents.

Claims 9, 13, 14 and 22 were rejected under 35 U.S.C. §103 as being unpatentable over the above-referenced '414, '075 and '498 patents.

Claim 12 was rejected under 35 U.S.C. §103 as being unpatentable over the above-referenced '414, '075, '498 and '286 patents.

Applicant thanks the Examiner for the Office Action, for the withdrawal of certain other rejections previously made, and for the very detailed explanation of the present rejections.

The Amended Claims

This amendment is being submitted after the entry of a final rejection. Applicant respectfully requests the Examiner to consider these remarks and enter this amendment since it, as will be explained hereinbelow, places the application in condition for allowance, or alternatively significantly narrows and focuses the issues for appeal.

By the present amendment, Applicant has canceled previously pending claims 7 and 9-22. Furthermore, Applicant has amended claim 1 to include the limitation of canceled claim 21 therein. Accordingly, independent claim 1, and claims 5, 6 and 8 dependent thereupon, are all restricted to a piston pin having a doped chromium nitride coating thereupon.

Claims 1, 5, 6 and 8 Are Allowable

Claim 1, the sole remaining independent claim in this application, has been amended to incorporate the limitation of claim 21 therein. Specifically, claim 1 now requires that the subject piston pin include a vapor deposited coating of a doped chromium nitride material. Claims 5, 6 and 8 are dependent thereupon, and as such also incorporate this limitation.

In the present Office Action, claim 21 was subject to only one rejection. This rejection was under 35 U.S.C. §103 in view of the Ajayi 6,213,075 patent taken in view of the Thiagarajan 6,640,779 patent. In the Office Action, the Examiner stated that the '075 patent shows an internal combustion engine having a roller follower coated with a chromium nitride coating. The Examiner recognized the fact that the '075 patent does not teach disposing the coating on a piston pin. The '779 patent was cited for the teaching that a piston pin is a load-

bearing part of an engine for which improved lubrication and/or reduced friction is sought. On that basis, the Examiner has advanced the opinion that it would be obvious to utilize the coating of the '075 patent on a piston pin.

All claims at issue now require that the piston pin be coated with a doped chromium nitride coating. Applicant respectfully submits that nowhere in the '075 reference is there shown the use of doped chromium nitride coatings on engine components. Furthermore, the prior art of record, taken as a whole, does not show or suggest the use of such doped chromium nitride coatings in connection with engine components. Therefore, Applicant respectfully submits that the prior art does not show or suggest the presently claimed invention. All claims are allowable. Reconsideration and withdrawal of the rejection is respectfully requested.

Conclusion

Entry of the present amendment is respectfully requested. This amendment places the application in condition for allowance, or alternatively narrows and focuses issues for appeal. Any questions, comments or suggestions the Examiner may have should be directed to the undersigned attorney.

Dated: August 21, 2006

Respectfully submitted,

By 

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